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LISTING OF CLAIMS:

Please consider the claims as follows:

1 1. (currently amended) Apparatus adapted for use in transmission in an
2 optical communication system, comprising:
3 a modulator, for modulating an optical phase of pulses within a sequence of
4 return-to-zero (RZ) pulses in accordance with an input digital data stream to form an
5 optical phase modulated signal, said modulator being one of phase shift keying (PSK),
6 differential phase shift keying (DPSK) or quadrature phase shift keying (QPSK)
7 modulator in which each pulse in the sequence of RZ pulses has associated with it an E-
8 field value representing a phase wherein for each bit interval, the E-field value starts and
9 ends at zero, and the E-field value is positive or negative at about the mid-point of the bit
10 interval; and
11 a means for applying the optical phase modulated signal to a dispersion managed
12 optical transmission medium.

1 2. (canceled)

 3. (canceled)

1 4. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a phase shift keying (PSK) modulator.

1 5. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a differential phase shift keying (DPSK) modulator.

1 6. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a quadrature phase shift keying (QPSK) modulator.

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1 7. (previously presented) The invention defined in claim 1 wherein said
2 medium is a long haul transmission medium adapted for transmitting solitons.

1 8. (previously presented) The invention defined in claim 1 wherein said
2 medium is adapted for transmitting pulses that disperse as they propagate along the
3 medium.

1 9. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further includes a wavelength division multiplexer adapted to combine an
3 output signal of said modulator with other optical phase modulated signals having optical
4 carriers with different wavelengths.

1 10. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a LiNbO3 phase modulator.

1 11. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a LiNbO3 Mach-Zehnder phase modulator.

1 12. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further comprises a receiver including a delay demodulator for receiving the
3 optical phase modulated signal from the dispersion managed optical transmission
4 medium.

1 13. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further comprises a receiver including a balanced receiver for recovering said
3 input data from the phase modulated signal.

14. (canceled)

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1 15. (previously presented) The invention defined in claim 1 wherein said
2 transmission medium includes discrete or distributed means of erbium-doped fiber
3 amplification (EDFA) or Raman amplification.

1 16. (currently amended) A method of transmission in an optical
2 communications, comprising the steps of:
3 modulating an optical carrier signal in a sequence of return-to-zero (RZ) pulses;
4 modulating an optical phase of said pulses in accordance with an input digital data
5 stream to form an optical phase modulated signal via one of phase shift keying (PSK),
6 differential phase shift keying (DPSK) or quadrature phase shift keying (QPSK) in which
7 ~~each pulse in the sequence of RZ pulses has associated with it an E field value~~
8 ~~representing a phase wherein for each bit interval, the E field value starts and ends at~~
9 ~~zero, and the E field value is positive or negative at about the mid point of the bit~~
10 ~~interval; and~~
11 applying said optical phase modulated signal to a dispersion managed optical
12 transmission medium.

17-18. (canceled)